



## COLORADO

Department of Transportation

Region 2

Lamar Residency  
2402 South Main Street  
Lamar, CO 81052

### Construction Services Scope Of Work Region 2

Scope Date: May 20, 2015

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It is intended that services will be performed for Construction Management, Materials Testing and Inspection for US287/US50 Thru Lamar from MP 73.00 to MP 77.639 and US 50 from MP 433.00 to MP 435.39, under a Project Specific Contract.

The Contract Administrator for this contract will be:

Brian Long  
Resident Engineer  
Region 2- South Program  
2402 S Main  
Lamar, CO 81052  
(719) 336-3228

Active Day-to-Day administration of this contract will be delegated to:

Kelly Melgoza  
Project Manager  
Region 2- South Program  
2402 S Main  
Lamar, CO 81052  
(719) 336-3228

#### General Scope of Work

The scope of work is for Construction Management services and Materials Testing for the referenced project. The scope of work will be for one project engineer, one assistant project engineer, one senior inspector, one junior inspector, one materials tester and one construction claims and schedule support staff on a monthly or as-needed basis.

The Consultant Project Engineer (CPE) shall be a professional engineer licensed in the State of Colorado. He will be utilized throughout the project to assist the Resident Engineer to oversee construction activities, overview of construction features, ensure conformance with CDOT plans and specifications, monitor other project personnel, and overview and review measurements of constructed quantities for preparation of estimates. The CPE shall have a minimum of 15 years of construction experience.

The Assistant Project Engineer will be responsible for day to day inspection of activities as assigned by the Project Engineer. These responsibilities may include documentation and inspection of construction activities, preparing payments for items of work, supervision and documentation of time and material work, and preparation of daily diaries documenting construction activities and relevant observations. The Assistant Project Engineer shall have a minimum of 8 years of construction experience.



The senior level inspector shall have a minimum of 6 years of construction inspection and management experience. The junior level inspector shall have a minimum of 2 years of construction experience. All inspectors shall have obtained training or certifications in Basic Highway Math, Surveying, Plan Reading, Stormwater Management, ACI Inspection, Erosion Control and CCA Traffic Control.

The inspectors will be responsible for day to day inspection of activities as assigned by the Project Engineer. These responsibilities may include documentation and inspection of construction activities, preparing payments for items of work, supervision and documentation of time and material work, and preparation of daily diaries documenting construction activities and relevant observations.

The Junior Inspector will be responsible for day to day inspection of ongoing work on the project as well as delivery of samples to and from both the project test lab and the region laboratory in Pueblo.

The Consultant Materials Tester will have a minimum of 6 years of experience on CDOT projects and will be primarily responsible for the testing of all materials on the project. Consultant tester shall be certified in LabCAT levels A, B, and I (asphalt inspector), ACI Field I, WAQTC, ACI Strength, Basic Highway Math, Surveying, and Plan Reading.

Consultant Claims and Schedule Analyst, as required:

- The Schedule Analyst shall be a certified Planning and Scheduling Professional (PSP).
- Analyze the work performed and determine whether any changes, extra work and/or delays were the result of differing site conditions, suspension or work, significant changes in character of work, plan errors, and/or omissions of the Department.
- Assess the liability associated with any changes, extra work and/or delays in order to determine responsibility for the additional costs alleged by the Contractor.
- Evaluate the extent of the Department's liability for any delays and/or changes which might have occurred and recommend to CDOT what course of action would be commensurate with this liability.
- Prepare an oral recommendation and a written report of findings and recommendations to CDOT.
- Perform initial review of the contractor's baseline progress schedule and narrative and monthly reviews thereafter.
- Attend via phone or video conference scheduling and/or project progress meetings as necessary.

Provide monthly written reports to the Department of all findings in the monthly progress schedules and narratives submitted by the contractor.





### Definitions

**CDOT Resident Engineer** – The CDOT Resident Engineer is responsible to the Region Program Engineer for the quality and successful completion of a transportation project. The Resident Engineer authorizes interim and final payments and all changes to Contracts for all Consultants and Contractors.

**CDOT Project Engineer** – The CDOT employee assigned by the Resident Engineer who is the Chief Engineer's duly authorized representative. The CDOT Project Engineer is in direct charge of the work and is responsible for the administration and satisfactory completion of the project under contract. The Project Engineer duties are further described in the CDOT Construction Manual.

**CDOT Region Materials Engineer** – The CDOT Region Materials Engineer (RME) assists the Resident Engineer and Project Engineer on this project with materials related issues including concrete, asphalt and steel.

**CDOT Assistant Materials Engineer** – The CDOT Assistant Materials Engineer is responsible to the Region Materials Engineer.

**Consultant** – The individual, firm or corporation contracting with CDOT to perform services as described in this Contract.

**Consultant Project Engineer (CPE)** – The Consultant's Professional Engineer is in responsible charge of services performed as described in this Contract. The Consultant's Professional Engineer must be licensed in the State of Colorado.

**Consultant Inspector and Materials Testing Technician (MTT)** – Consultant employees who perform construction inspection, construction materials-testing services, and other project-related services under the responsible charge and at the direction of the CDOT Project Engineer.

**Contractor** – The individual, firm or corporation contracting with CDOT to construct a transportation project.



### **Project Description and Location**

This work is located in Prowers County, City of Lamar on US 287 from MP 73.00 to MP 77.639 and US 50 from MP 433.00 to MP 435.39. This work will consist of removal of existing roadway (asphalt, concrete, medians, lighting, curb and gutter), embankment, ABC, concrete pavement, new curb & gutter, utilities (lighting, water, storm and sanitary sewer, etc...), bulb-outs in the downtown area, replacement of a traffic signal at Main and Olive, ADA ramps, signing, striping, seeding, and mulching.

### **Project Standards**

Inspection, testing and sampling shall be in accordance with the Colorado Department of Transportation (CDOT) Construction Manual and the applicable Standard Specifications for Road and Bridge Construction, Project Standard and Special provisions, project plans, CDOT M&S Standards, and CDOT Materials Manual currently in use when the construction project is advertised.

If the required method is not described in the CDOT Field Materials Manual the required work shall be completed in accordance with:

- 1.) AASHTO Standard Specifications for Transportation Materials and Methods of Sampling and Testing (as revised and supplemented), or
- 2.) The ASTM Standards and Tentatives, in this order.

Proposed work procedures shall be coordinated with the Project Engineer prior to the start of work.

### **General Requirements**

#### **Authorization to Proceed**

Work shall not commence until the written Notice to Proceed is received by the consultant, and shall be completed within the allotted time specified. Time charged shall be exclusive of time lost for:

- Reviews and Approvals
- Responses/Direction from CDOT

#### **Initial Project Meeting**

CDOT and the Consultant project personnel shall meet to coordinate and schedule the required work prior to active construction. The Consultant shall complete all work in accordance with the approved schedule or as approved by the CDOT Project Engineer.

#### **Work Duration and Project Cost**

The time period for the work described in this scope of work will be a contract for 5 years or \$5,000,000.00 whichever is reached first. It is anticipated that the duration will be from March 2016 to March 2021. Work may be required at night and/or day, weekends, holidays, and/or on a split shift basis when requested by the Engineer. Work weeks may be in excess of or less than the standard 40-hour week.



### **Routine Billing & Reporting**

The Consultant shall provide the following on a regular basis:

- Monthly billing formats, suitable to the CDOT Project Manager, for all contract activities performed by the Consultant staff. The Consultant shall submit CDOT Form 10s or a timesheet format approved by CDOT for all Consultant personnel assigned to the project with each monthly billing.
- Monthly billings should include the contract status.
- Periodic reports and billings required by CDOT Procedural Directive 400.2.
- Weekly time cards for consultant personnel. The CDOT Project Manager prior to billing, must sign these time cards.
- Supporting documentation for all direct costs.
- Weekly approval of mileage for vehicle.

The Consultant shall monitor the fiscal status of the contract, and advise the CDOT Project Manager of any potential for supplementing their contract or negotiating an additional task order. Failure to monitor contract status and provide timely notification may result in discontinuation of the Consultant's services on the project until a supplemental agreement can be effected.

### **Compensation Proposal Assumptions**

The attached compensation proposal is SPECIFIC RATE OF PAY.

A supplement to this contract will be necessary in the event the level of effort required increases beyond that described, including but not limited to extended construction duration and/or additional construction shifts.

Direct costs will be expended as required for the proper performance of the work, and in accordance with CDOT requirements and approvals.

CDOT will reimburse Consultant for hotel costs and per diem for personnel from Denver, Colorado Springs or Pueblo who are full time on-site field personnel in compliance with CDOT procedures and policies and state fiscal rules.

### **Consultant Personnel Requirements**

The Project Engineer will be the Engineer in Responsible Charge of the project with the day to day responsibilities and duties associated with CDOT contract administration. The CPE shall be on the job site at all times during construction to answer any questions regarding the work or provide information and analysis to the RE as requested.

The Assistant Project Engineer will be responsible for day to day inspection of activities as assigned by the Project Engineer.

Other responsibilities and duties include but are not limited to:

- Supervision of project staff, verbal and written correspondence with the Prime and Sub-Contractors.
- Inspection of materials and methods of construction to verify compliance with CDOT and contract specifications.
- Prepare monthly pay estimates.
- Review, analyze and monitor the Contractor's project schedules and method statements.
- Analyze and evaluate Contractor disputes or claims.
- Review, analyze and approve Methods of Handling Traffic (MHT's).
- Monitor the project financial status.



- Review certified payrolls.
- Resolve material and traffic control issues.
- Coordination/contact with local entities and business with respect to construction activities.
- Participation in weekly progress meetings with contractor, subs, utilities and other interested parties.
- Securing project documentation from the contractor.
- Maintaining accurate notes reflecting actual construction details to be used in preparation of as-constructed plans.
- Initial, follow up, and final inspections of work in progress including interim and final measurements.
- Notifying contractors and Resident Engineer of non-compliance with the contract plans and specifications.
- Performance of special tests, investigations, or monitoring which are required to fulfill the intent of the CDOT inspection program.
- Preparation of inspection documentation for development of progress payments for the contractor in accordance with prescribed procedures.
- Submittal of standard documentation reports (such as Daily Work Report) no later than the following working day.
- Aiding in the preparation of routine correspondence to the contractor, CDOT Staff, Local agencies, etc.
- Providing liaison and communication to contractor field crews.
- Prepare and transmit updates of construction activities to the CDOT Public Information Office.
- Periodic reports and billings required by CDOT Procedural Directive 400.2.
- Perform initial, in-progress, and final inspections of work in progress including interim and final field measurements.
- Monitor contractor payroll compliance.
- The following environmental related items shall be monitored on a daily basis.
- Project compliance with Environmental Requirements to minimize all construction related
- Impacts to the unique, natural, visual, and cultural characteristics of the environment.
- Activities to be monitored will include drilling and blasting, shotcrete application, environmental monitoring of turbidity, staining and seeding and planting.
- Wetlands protection and encroachment.
- Environmental conditions and BMPs, ensuring that the Stormwater Management plans are properly implemented and maintained.
- Check project documentation from the contractor.
- Ensure that material certifications are submitted by the Contractor and approved prior to installation.
- Anticipate potential project problems and recommend solutions to the CPE and the CDOT Resident Engineer.
- Review drawings and data submitted by the construction contractor and suppliers for conformance with the project specifications.
- Inform and obtain concurrence as needed from the CPE regarding changed conditions/situations in the field, and maintain relative documentation for project records.
- Maintain accurate notes reflecting actual construction details to be used in preparation of "As-Constructed" plans.
- Communicate with adjacent landowners as required to resolve issues that arise due to construction.
- Ensure compliance with the Traffic Management Plan.
- Monitor compliance with and taking appropriate action to preserve safety on the project for all workers and traveling public in accordance with Method of Handling Traffic (MHT) and the Manual of Uniform Traffic Control Devices (MUTCD), OHSA, the project plans and specifications.
- Initial, follow up, and final inspections of work in progress including interim and final measurements.





- Photo document inspections during the course of the work.
- Notify contractors and CPE of non-compliance with the contract plans and specifications.
- Perform investigations or monitoring as required to document project item acceptance.
- Prepare and complete inspection documentation required for development of progress payments for the contractor in accordance with prescribed CDOT procedures.
- Submit standard documentation reports no later than the following working day.
- Prepare routine correspondence to the contractor, CDOT Staff, local agencies, etc.
- Provide liaison and communication to Contractor field crews.
- Assist in preparing punch lists of uncompleted work, non-conformance reports, and deficiency reports.
- Prepare final "As Constructed" plans during construction and upon project completion.
- Miscellaneous related duties as requested by the CPE.
- Assist in preparing responses to contractors' and suppliers' requests for information, submittals, change notices, claims, and correspondence.
- Some inspection activities will require the coordination with CDOT Environmental staff.
- Prepare all final documentation.

Inspection work shall conform to the CDOT Construction Manual, the Inspector Checklist and SiteManager requirements. SiteManager documentation procedures set by the project engineer will apply. A copy of the daily diary shall become a part of the permanent project record.

Inspection responsibilities may include but are not limited to the following:

- Preparation of inspection documentation for development of progress payments for the contractor in accordance with prescribed procedures.
- Initial, follow up, and final inspections of work in progress including interim and final measurements.
- Participation in weekly progress meetings with contractor, subs, utilities and other interested parties.
- Securing project documentation from the contractor.
- Anticipating project problems and directing solutions to the CDOT Project Engineer.
- Assist the Project Engineer in reviewing drawings and data submitted by the construction contractor and suppliers for conformance with the specifications.
- Maintaining accurate notes reflecting actual construction details to be used in preparation of as-constructed plans.
- Communicating with adjacent landowners as required toward resolving issues that arise due to construction.
- Monitoring compliance with and taking appropriate action to preserve safety on the project for all workers and traveling public in accordance with Method of Handling Traffic (MHT) and the Manual of Uniform Traffic Control Devices (MUTCD).
- Promptly notifying contractors and CDOT Project Engineer of non-compliance with the contract plans and specifications.
- Performance of special tests, investigations, or monitoring which are required to fulfill the intent of the CDOT inspection program.
- Submittal of standard documentation reports no later than the following working day.
- Monitoring and documenting contractor payroll compliance.
- Providing liaison and communication to contractor field crews.
- Assist the Project Engineer with preparation of final "As Constructed" plans.
- Assist in preparing punch lists of uncompleted work, non-conformance reports, and deficiency notices.

The Materials Testing Technician (MTT) shall be thoroughly familiar with CDOT forms and documentation requirements. The Materials Testing Technician shall sample, test, and document all materials incorporated



into the project. This includes materials delivered to the project that are listed in the Summary of Approximate Quantities. The number of tests required shall be in accordance with the Schedule in the Field Materials Manual and CDOT Forms 250 and 379. Additional quantities may be added by Contract Modification Order, or plan approximate quantities may be increased or decreased. The MTT and Project Engineer shall review project quantities on a weekly basis to ensure that sufficient tests have been performed for all material placed to date. Additional testing may be required if requested by the CDOT Project Manager or CDOT Resident Engineer.

**Documentation:**

Maintain a daily diary for each day they perform work on the project. They shall use CDOT's form "Automated Form 103a Project Diary" unless otherwise approved by the CDOT Project Manager. The contents of the diary shall be brief and accurate statements of progress and conditions encountered during the execution of the work. Editorial comments should not be in the diaries or any written documentation applicable to the project. A copy of the daily diary shall be available for the CDOT Project Manager within one working day of its date.

**Labor, Materials, Vehicles and Equipment**

The Consultant shall furnish all personnel, materials, equipment and transportation required to perform the work. Consultant personnel shall have appropriate vehicles (equipped with flashing amber beacon) cellular phones, computers and miscellaneous equipment and supplies (printers, calculators, manuals, office supplies, safety equipment, etc.) required to perform the work. Computers shall be fully capable of running SiteManager, including necessary communications hardware, software and internet connectivity. The consultant shall furnish a scanner and latest version of Adobe Professional. Field Office and Field Laboratory will be provided by Construction Contract pay items.

Testing equipment may include, but not be limited to, the following:

1. Nuclear Moisture /Density gauge
2. Asphalt Content Nuclear Oven
3. Sieves for aggregates and soils gradation
4. Electronic scales, if not furnished by the contractor
5. Proctor equipment for soil curves and 1-point tests
6. Atterberg equipment
7. Sample drying equipment
8. Miscellaneous pans, tools, equipment for performing the required soils, concrete, and asphalt field tests
9. Tape measure and various hand tools
10. High/low and recording thermometers
11. Various office supplies and calculators
12. Computer and CDOT approved programs
13. CDOT M & S Standards, Construction Manual, and Inspector's checklist
14. Concrete testing equipment: air meter, slump cone, unit weight scale and hand tools





Personnel qualifications, staffing level, and number and types of vehicles shall be subject to the approval of the Resident Engineer. The Consultant shall assign personnel for the duration of the Construction Contract unless otherwise approved by the CDOT Project Engineer.

The consultant personnel must be thoroughly familiar with CDOT specifications, manuals, forms and documentation requirement. The consultant project engineer, assistant project engineer and inspectors must be trained in the use of SiteManager and Traffic Control Supervision. The consultant tester must be trained in the use of LIMMS. Personnel provided by the Consultant who do not meet all of the specified requirements, or who fail to perform their work in an acceptable manner, shall be removed from the project when determined and directed by the Resident Engineer.

#### **Engineer's Certification**

The Consultant Engineer shall be the final authority regarding acceptance of work performed by the inspection Consultant. The CDOT Resident Engineer shall be the final authority regarding acceptance of work not conforming to the plans and specifications. The Consultant Professional Engineer shall be responsible for all inspections performed by the Consultants inspector.

#### **Post Construction Activities**

The Consultant shall prepare and submit all final documents including As-Constructed Plans and Materials Documentation to be checked by the R2 Finals Engineer. The consultant shall have final documentation including revisions done within 45 days of the project acceptance date.

